SCIENCE OF NATURE-HISTORY.

BY

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SCIENCE OF NATURE-HISTORY.

A line of study for assigning places to all events in creation in order of time, showing their genesis, which may define themselves.

BY

NASARVANJI JIVANJI READYMONEY,

AUTHOR OF

"A Scheme of Educational Reform and how to Found an Investigating, Teaching and Examining University, or Institutions of Science, Æsthetic and Games," "Descriptive Biography Columns," "A University for Research-Record and Instruction, Nature-History Museum, and A Guide to Descriptive Defining Nature-History Tables Illustrated."

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BOMBAY:
"THE TIMES OF INDIA" OFFICE.
LONDON OFFICE, 121, FLEET ST., E. C.

1907.

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"Nature is made better by no mean,
But nature makes that mean: over that art
Which you say adds to nature, is an art
That nature makes."

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ERRATA.

Pages 29, 33, 48, 55 to 64. For "Particular Actions," read "Ordinary Actions."

Page 49. For "Message," read "Massage."

„ 51. After "4, Hearing," add "5, Sight."

„ 64. Lines 24 and 26. For "department," read "deportment."

„ 65. Sub-section 1, Soldiers, line 12. For "and thus." read "and thus,."

„ 79. Add at foot, "34, Coin-making machines. Mints."

„ 80. Add "Masks."

„ 81. Add "Glass" under "8, Æsthetic Products."

„ 82. Add "Books" after "6, Alphabetic Writing."

„ 96. For "mimicing," read "mimicking."

FOREWORD.

I leave to students and to abler and more competent hands than mine to work out the scheme for the *Descriptive Defining Nature-History Research-Record.* The scheme may not be carried out in full.—However, the "Guide Showing How or Where to Think on Events or Collect Facts in Nature-History Order, so as to Describe and Define Events from Nature-History Point of View," will, as Science of Nature-History, be of some use to students, for assigning places to all events in Nature. They will thus be enabled to conceive that what happens or exists is natural, and would not simply "describe what probably took place rather than explain why it was necessary that it should have taken place."

NASARVANJI JIVANJI READYMONEY.

BOMBAY, 1907.

SCIENCE OF NATURE-HISTORY.

NATURE-HISTORY.

THOUGHTS which have dethroned God of anthropomorphic attributes and abolished anthropomorphic histories of creation and have enthroned Unknown Cause of events in an unknown palace and crowned Him with philosophic thinking have created nature-history on nature-history basis. A blessing of a religion of earthly use has thus been perfected to human life for the peace of mind and happy unanimity of living.

Not to fear nature as our ancestors did; not to worship it; nor to adore it: nature-history means nature's knowledge, to know it by corresponding the order of ideas to the order of nature in time, that is the order of events in time. The Science of Nature-History is to discover the past by nature-history method and to record the past in such a manner as to investigate it and act upon it. Thus nature-history is the practical study of nature.

All intellectual reform simplifies our intellectual institutions, and suggests a scheme, which could separate entirely anthropomorphic histories from natural sciences. Thus nature-history is formed on natural sciences, that is on nature-logic with power of nature-poetry. Historical learning and teaching should work on nature-history line, instead of as we have at present, the teaching of history coming from moral fancy or political bias of different historians of different bents and of different religious and political ideas or emotions.

The methods of Aristotle, Bacon, and Comte, and Spencer's artificial classes of evolution into inorganic, organic and super-organic are transferred or consolidated into this useful devise of thinking facts in order of nature-history, describing and defining events from nature-history point of view.

The best and most effective means of raising the mass of the population to a good level of intelligence, so that they may think for themselves, is to make the order of their ideas correspond with the order of events in time. That is nature-history making man wise and contented.

We do not live to learn but learn to live well and to live human life.

Genesis of Events Describes and Defines them and therefore it becomes Knowledge and the Science of all Subjects.

"All knowledge finally culminates in some kind of classification." "A definition is a description separating the thing defined from all other things."

All facts or phenomena classified according to their natural order and arranged in order of time, that is, to connect them by the natural relation of succession and resemblance, show genesis and genetic relationship,. and tend to show the genetic relationship of degraded or reduced phenomena. These result in giving explanation of evolution and definition of all events and in Descriptive Defining Nature-History.

It is an abstract generalization of creation, resulting in concrete facts historically arranged for a practical definition of all phenomena—astronomical, geological, hydrographical, atmospherical, bacterial, botanical, zoological (including mankind), artiospherical (artificial things).

Descriptive Defining Nature-History Research-Record Illustrated.

(For specimen see from page 87.)

When events or phenomena are thus analysed and recorded analytically in order of time, as said above, and colour pictures of them are given, the record or illustrated sheets represent or trace out the genesis, classification records and the genesis records coincide, and the Descriptive Defining Nature-History and Research-Record result. The scheme thus makes researches and at the same time records events logically and scientifically for the purpose of investigation, and then becomes investigation itself. To record an event according to nature-history is to fix its place in nature, that is, to give description, definition, and nature-history of it. As a coin has value fixed on it, so a subject recorded has value or quality assigned in creation according to its place in it.

Each stage is added on to a succeeding sheet, which makes a minute analysis and definition. Thus every event is recorded and illustrated, that is, recorded with the special differentiation, which distinguishes it from the preceding species, hence its place in evolution is shown at a glance. Again, all preceding stages are stated in

numbers and names in order of class and time or history of events, otherwise the event will not be a part of the whole and it will not be a descriptive defining scheme and a nature-history of the whole creation, but it becomes simply names and pictures without definitions.

Opinions of authors should be quoted, and students' own observations noted on the reverse side of the sheets. For specimen see pages 89-91, 93-94, 95-96. Or they may be separately written and printed on separate sheets. But they should have the recording arrangement of numbers and names by the side, and should follow the original sheets and illustrations. Turn each sheet, therefore, to see the authority, or see the separate corresponding sheet of authority. Nothing should be recorded without authority or your opinions if any. For specimen see pages 89-91, 93-94, 95-96.

All like to think on and to collect facts or events, and I have here suggested to think on and to collect them in such a manner as to describe and define events, when thinking and collecting them, and no more trouble should be taken to describe or define events, which can be achieved by thinking or collecting facts in nature-history order, as suggested here. These should be arranged in the scheme of *Descriptive Defining Nature-History Research-Record*, having duplicates of them, so as to arrange them for natural history of each subject separately for that subject. That is, always prepare two sheets, one for *Descriptive Defining Nature-History Research-Record*, and the other for each subject, that is, natural history of it. For instance, for law, legal ideas of all peoples up to the present time of the lower and higher races. So on of teachers. When made for teachers, natural history of education is made. There are many animals that teach others, and in animal man (hominidæ) a class is formed of teachers and special teachers of many subjects—law, music, sports. Thus, natural history is separated and recorded for each subject from nature-history of them for instruction and educational purposes and with pictures.

History of the Scheme.

The author of this work was in the habit of interpreting all events from nature-history point of view or scientifically, and in 1878 he finally decided to interpret from that point of view or scientifically the events not simply non-living and living, but mental and human also.

Thanks to the practical works of naturalists, and among them of Auguste Comte and Herbert Spencer, affairs of mankind are explained away from the naturalist's point of view.

Those who used to argue with him about human institutions and artificial objects did not agree with him while interpreting from the naturalist's point of view. Owing to this disappointment he thought of explaining events in a simple manner, so that any one could understand events from that point of view, and therefore devised in 1887 a system of *Descriptive Defining Analysis Table Series or Work of Genesis*, which is suggested to be done in this book and is named *Descriptive Defining Nature-History Research-Record.*

To enable students to undertake the work, he was induced to prepare a guide in the same year, 1887. He improved upon it and published it in 1905, entitled *A University for Research-Record and Instruction. Nature-History Museum, and A Guide to Descriptive Defining Nature-History Tables Illustrated.* He now brings out the same work, revised in these pages, forming as it does a synthesis of truth based upon nature's history under the title of *Science of Nature-History.*

A University for Research-Record and Instruction.

Governments have to keep records and support education. So, the method of keeping records, which defines and at the same time describes events, past and present, has been suggested in this work. In order to carry out such a scheme, A University for Research-Record [illegible] should be formed, where students of all subjects and [illegible] may work and compile a progressive work, namely, Descriptive Defining Nature-History Research-Record Illustrated.

A GUIDE

showing

How or Where

To Think on Events

or Collect Facts

in

Nature-History Order

so as to

Describe and Define Events

from

Nature-History Point of View

OR

A GUIDE

To Descriptive Defining Nature-History Research-Record Illustrated.

"God has framed the mind like a glass capable of the image of the universe and desirous to receive it as the eye to receive the light."

BACON.

EVENTS: SUBJECTS.

Nebulæ, Meteors, Comets, Stars, Planets, Rings, Satellites, Celestial Gravity, Heat, Light, Electricity and Magnetic events, ect., see pp. 8—11.

EARTH IN ITS SEVEN SPHERES.

1. Centrosphere, central part of the Earth, see p. 12.
2. Tektosphere, molton part of the Earth, bordering on fusion, see p. 12.
3. Lithosphere, solid part of the Earth, that is Geological stratas, see pp. 13-15. Emergence and Sub-emergence of lands, Geography, see p. 15.
4. Hydrosphere, water part of the Earth, Oceans, Seas, Rivers, see p. 16.
5. Atmosphere, air, that is, gaseous part of the Earth, see p. 17. Terrestrial Gravity, Heat, Light, Electricity and Magnetic events as in meteorological observatories in nature-history order, see p. 18.
6. Biosphere—Bacteria, plants, animals, that is biological part of the Earth.
    1. Bacteria, economical included, see pp. 19—22.
    2. Plants—Anatomy, physiology, pathology, agriculture economy, see pp. 23—26.
    3. Animals—Anatomy, physiology, pathology, and about mind, that is, feelings, emotions, perceptions, ideas, actions, and the things they produce and use, such as, mounds, nests, dams, webs, &c., pp. 27—34.

    Hominidæ, that is animal man—anatomy, physiology, pathology and about mind, that is, feelings, emotions, perceptions, ideas, actions, primitive and up-to-date actions of all sorts, languages, and what and how they produced or made and make (that is) artificial things, and what they used and use such as habitations, monuments, clothing, implements, machines, ect., etc., see pp. 35—74.
7. Artiosphere, all artificial things, see pp. 75—86. They are also entirely natural things, therefore suggest the seventh sphere, and I name them Artiosphere, which comes after 6, Biosphere, and therefore seventh part of the Earth, showing genesis, growth, utility, that is, their descriptive definition in nature-history, see pp. 75—86.

ASTRONOMICAL EVENTS.

The work entitled "Photographs of Stars, Star Clusters and Nebulæ," by Dr. Isaac Roberts, D.Sc., is of permanent value. To collect photographs of northern and southern heavens and in successive tables to go on enlarging parts of each so as to illustrate the portions thereof minutely and on a larger scale and to continue doing so for each celestial body and its physical constitution or spectra, and to arrange them in order of nature-history is the mode of record-keeping suggested in this work. All classes should be arranged in order of nature-history. Students of different schools of opinion should record differently. I suggest to do this as on p. 9, 1 Nebulæ, 2 Meteors, 3 Comets, and 4 Stars ; to divide Stars into 1 Invisible, 2 Visible, and 3 Sun. As Sun is our own star I separate it as 3. Planets should be divided into 1 Large Planets, and 2 Small Planets. In 1 Large Planets, Earth is placed as the 6th planet. It is for astronomers to decide before or after which planet the earth was hurled out from the Sun, and so to tabulate it according to its nature-history and genesis. If there is a reduced, that is, degraded phenomenon, that should be recorded.

After recording a celestial body in order of nature-history, record the environment of that body. A celestial body is known to us by its position in relation to other bodies, therefore, these records of environment should precede other records, and these include what we see daily stated in astronomical calendars, namely, elongation, transit, conjunction, etc. After that should be recorded the travel of that body, which is analogous to the preceding, also to time. Nextly have records of structure, that is, size, weight, chemical constitution, ect., or of the body as is formed into spheres—central, middle, and outer, and solid, liquid, and gaseous. Our Earth is divided into seven spheres, see page 12.

ASTRONOMICAL EVENTS.

1. Nebulæ
    1. Irregular nebulæ.
    2. Ring nebulæ and elliptical nebulæ.
    3. Spiral or whirlpool nebulæ.
    4. Planetary nebulæ.
    5. Nebulæ surrounding stars.
2. Meteors
    1. Aërolites, or meteoric stones.
    2. Aërosiderolites; which include the intervening varieties.
    3. Aërosiderites; or metoric iron.
3. Comets
    1. Long periods.
    2. Short periods.
4. Stars
    1. Invisible=Telescopic stars
        1. Magellonic clouds.
        2. Milkyway stars.
        3. Clusters of stars.
        4. Variable stars.
        5. Double and multiple stars.
        6. Ordinary stars 27 to 7 magnitude invisible stars.
    2. Visible stars=untelescopic=without telescope, 6,000, then our star 7 to 1, magnitude to name here in order from oldest to youngest.
    3. Sun
        1. Planets=satellites of the sun
            1. Large Planets, Major
                1. Neptune.
                2. Uranus.
                3. Saturn.
                    Ring.
                    Satellite.
                4. Jupiter.
                5. Mars.
                6. Earth.
                    Moon.
                7. Venus.
                8. Mercury.
                9. Vulcan.
            2. Small planets = Minor. Asteroids.
                1.
                2.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.

Earth's Environment.

Environment.

Nebulæ's positions.

Distances, in

different times of

the earth from nebulæ.

Their effect on Earth. Pictures.

In other sets of tables so of

Meteors.

On earth so of

Comets,

so of

Stars

1, Telescopic

so of

2, untelescopic

so of

3, Sun, by showing

place of the Earth

in solar system,

time and

distances, from the sun.

So of

all other planets.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.

TRAVEL OF THE EARTH.

Travel of the Earth. See *Nature* July 25, 1901, "Our Astronomical Column," "The Twelve Movements of the Earth."

1, Rotation, having a period of 24 hours.

2, Revolution, having a period of 365¼ days.

3, Procession, having a period of 25,765 years.

4, Luni-solar gravitation, having a period of 28 days.

5, Nutation, having a period of 18½ years. Pictures.

6, Variation of obliquity of ecliptic, about 47 are in 100 years.

7, Variation of eccentricity of orbit.

8, Change of line of opsides, period about 21,000 years.

9, Planetary perturbations.

10, Change of centre of gravity of whole solar system.

11, General translation of solar system in space.

12, Latitude variation with several degrees of periodicity.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.

7, Spheres of the Earth.

Spheres of the Earth.

1, Centrosphere. Central part of the Earth. To record size, structure, weight of the Earth in its first stages and how centrosphere, that is, central part, differentiates upto now.

2, Tektosphere. Molten part of the Earth (textos molten), bordering on fusion. To record size, structure, weight of molten stages, and how they differentiate upto now.

3, Lithosphere. Solid part of the Earth. Geological stratas. Geography, emergence and submergence of lands.

4, Hydrosphere. Water part of the Earth.

5, Atmosphere. Air that is gaseous part of the Earth. Terrestrial gravity, heat, light, electricity and magnetic events to collect as in meteorological observatories in nature-history order.

6, Biosphere :—

1, Bacteria.

2, Plants.

3, Animals including hominidæ, that is human being.

7, Artiosphere. All artificial things are also entirely natural things, see pp. 75 to 86. I coined the word some years ago, and use it here, 7, Artiosphere, to keep in harmony the terminology of this Science of Nature-History. For 6 spheres, see *Nature* of September 13th, 1900. British Association opening address. Section C. Geology, by Prof. W. J. Sollas.

4, Stars.
2, Sun.
1, Planet.
1, Large Planet.
6, The Earth Planet.

3, Lithosphere.

The students of Geology to improve this order. See *The Story of the Earth in Past Ages*, by H. G. Seeley, for the words used here, which I have numbered.

1, Lower primary.

2, Archæan.

3, Cambrian.

4, Ordevician.

5, Silurian.

6, Upper primary.

7, Devonian.

8, Corboniferous.

9, Permian.

10, Secondary.

11, Trias.

12, Lias.

13, Oolite.

14, Neocomain.

15, Cretaceous.

16, Tertiary.

17, Eocene.

18, Oligocene.

19, Miocene.

20, Pliocene.

21, Post-tertiary or quarternary periods fleistocene or post pliocenæ recent.

22, Post Glacial.

23, Glacial. All stages.

Maps and colour pictures for each strata and its parts in all Research-Record of Geological events.

4, Stars.
8, Sun.
1, Planet.
1, Large Planet.
6, Earth.
3, Lithosphere.

Mineral Water and Oils.

25, Litho-liquid sphere = Stratas bearing mineral springs, oils. Geologists have to number, name and arrange it. I simply put the number 25 to separate it. I have separated fluids, for explanation.

1, Mineral waters.
Places of mineral waters.
Their qualities.
Chemical constitutions.

Maps,
geological stratas
showing localities,
and colour pictures
of waters, oils.

2, Oil springs,
varieties of oil,
their qualities

4, Stars.
3, Sun.
1, Planet.
1, Large pl-net.
6, Earth.
3, Lithosphere.

GEOGRAPHY.

27, External surfaces.

Emergence and Submergence of lands.

Structure and disposition of continents.

In successive tables give

divisions of continents, and

upto a mile in an inch scale,

and maps minutely for small — Maps.

places in order of nature-history. — Colour pictures.

Submergence of continents.

Upheaval and subsidence.

Falls.

Volcanic eruptions.

The elevation of mountain-chains.

The depression of sea-basins.

"The gradual evolution of existing topography of the surface of the globe" thus to be had.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, Earth.

4, Hydrosphere.

OCEANS, SEAS, ETC.

1, Oceans.
Figures.
Length.
Breadth.
About
tide.
Ebb.

Maps, atlases, about hydrosphere and its divisions of oceans, etc., in nature-history order and about tide, ebb, etc., currents of rivers, etc.

2, Seas.

3, Lakes.

4, Rivers.

Falls of water as parts of rivers and streams.

5, Streams.

ATMOSPHERE.

4. Stars.
3, Sun.
1, Planet.
1, Large planet.
6, The Earth.

Students of Meteorology to improve and arrange this order.

5, Atmosphere. Air around the Earth is a part of the Earth.

1. Pressure of air at different heights.
    1. In mines.
    2. Over oceans.
    3. Over plains.
    4. Over hills, mountains, and at different heights.
2. Qualities of atmosphere at different places and heights.
    1. Which gases.
3. Humidity. Hygrometrical state that is moisture.
4. Mist.
5. Fog. Maps, charts,
6. Frost. illustrations.
7. Hail.
8. Snow.
9. Clouds. In 10 varieties.
10. Rain.
11. Movements that is wind in different stratas, different velocities from calm to cyclones, tornadoes, hurricanes. Water spouts indicate circle of air winding a space in which space water rises in the air that presses the water up. Therefore I place it in 5, Atmosphere and not 4, Hydrosphere. Water rising is in 4, Hydrosphere.
12. Directions, currents.

4, Stars.
3, Sun.
2, Planet.
1, Large planet.
6, The Earth.

Terrestrial Physics.

Gravity observation tables terrestrial. Barology.

So of

Heat terrestrial, for celestial in former tables about their celestial bodies. Thermology.

So of

Light.

So of Maps, charts, illustrations.

Electricity.

So of

Magnetic events.

And so of

Other rays.

4, Stars.
3, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.

Bacteria or Microbes.

1, Microbes. See *Nature* 2nd June, 1898.

1, Coccaceæ. Family I.

1, Streptococcus=division in one plane. Species 1.

2, Micrococcus=division in two planes. Species 2.

3, Sarcina=division in three planes. Species

4, Planococcus=division in two planes; flagella.

5, Planesorcina=division in three planes; flagella.

2, Bacteriaceæ. Family II.

1, Bacterium=no flagella.

2, Bacillus=completely surrounded by flagella.

3, Pseudomonds=polar flagella.

3, Spirillaceæ. Family III.

1, Spirosoma=no flagella; rigid.

2, Microspira=1, or 2-3 polar flagella; rigid.

3, Spirillum=5-20 polar flagella; rigid.

4, Spirochæte=no flagella; flexible.

4, Chlamydobacteriaceæ. Family IV.

1, Streptothrix.

2, Cladothrix.

3, Crenothrix.

4, Phragmidiothrix.

5, Thiothrix.

5, Beggiatoaceæ. Family V.

Beggiatoa. Species.

4, Stars.
8, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.
1, Bacteria, Kingdom.
..... Family.
..... Species.

BACTERIA.

Structure.

Forms. — Colour pictures of Bacteria.

Size, length, breadth, depth

Weight.

Colour.

Chemistry. — State magnified so many times.

State which parts, quality differ from the previous, thus to show how it differentiates from the previous species.

4, Stars.
3, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.
1, Bacteria.
..... Family.

BACTERIA.

Function.

Pictures.

State magnified so many times.

In different environment,
functions differ.

Absorbtion.

Manner of multiplication.

1, Reproduction by budding—growth by budding—the yeast that is used in baking and brewing.

2, Reproduction by splitting. Growth by splitting.

Body of the parent spontaneously splits into two or more parts.

4, Stars.
2, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.
1, Bacteria.
..... Family.

BACTERIA.

Environment.

Environment.

Astronomical, Lat., Lon., Time.

3, In lithosphere—
below surface,
on the surface,
wet soil,
floating dust,
decaying vegetables, carcases (these not in biosphere).

4, In hydrosphere—
water,
rivers, running.
oceans, stationary.

Illustrate all these.

5, In Atmosphere—
near surface,
distances from surface.

6, In Biosphere—

1, In other bacteria.

2, In plants.

3, In animals, for instance, phogocytosis where bacteria eat up cells of water flea or its cells eat up the bacteria, (including hominidæ of different ages, races, classes or special actions).

7, Artiosphere.
In nests of birds,
In houses, monuments,

For definite purposes by hominidæ. To manufacture, for instance,
Linen, jute, hemp, cocoanut fibre
Leather preparation.
Acids.
Yeast, beer.
Milk preparations.
Agricultural purposes.
Anticeptics to destroy them.
Antitoxines.

4, Stars.
3, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.

Plants.

2, Plants. Kingdom.

1, Cellular Plants. Division. See *The Story of the Plants*, by G. Allen, p. 221, for this order.
Wholly composed of cells.

1, One-celled types, float freely in water. Sub-kingdom

1, Single mass of protoplasm. Algæ.

2, hair-like water-weeds, Fungi,
Sea-weeds.

2, Vascular plants. Division.
Stem-forming. Vessels and woody tissue.

1, Flowerless. Sub-kingdom.

2, Flowering. Sub-kingdom.

1, Naked seeded.
Pines, firs, cypresses, yews.

2, Fruit-bearing,
herbs, shrub.

1, Dicotyledons. Class.

2, Monacotyledons. Class.
Orchides, ledges.
Lilies, grasses.

3, Acotyledons. Class.
Propagation by spores.

4, Stars.
3, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.
2, Plants. Kingdom.
..... Division.
..... Sub-kingdom.
..... Class.
..... Order,
..... Genus.
..... Species.

PLANTS.

Anatomy.

Structure

Abnormal included.

Forms

Morphology.

Size, length, breadth, depth.

Weight.

Colour.

Anatomy.

Histology.

Tabulate what parts differ from the previous species, thus to show how it differentiates from the previous.

Colour pictures of species and colour pictures showing how each differs from the previous one.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
2, Plants. Kingdom.
..... Division.
..... Sub-kingdom.
..... Class.
..... Order.
... ... Genus.
..... Species.
..... Male or female.

PLANTS.

Physiology.

Functions. Physiology includes pathology, which is physiology of diseases.

1, Digestion.

2, Æration.

Pictures of species showing all these functions.

3, Circulation.

4, Multiplication.

5, Movements.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
2, Plants. Kingdom.
..... Division.
..... Sub-kingdom.
..... Class.
..... Order.
..... Genus.
..... Species.

PLANTS.

Environment.

Environment.

Astronomical.

In what lat., long., time. Pictures.

Solar and lunar effect on plants.

3, Lithosphere.

Geological strata,

Soil, altitude,

Names of places on which the plant grows or was found.

4, Hydrosphere,
5, Atmosphere, } about water, air, weather, climate.

6, Biosphere.

1, Bacteria, what grows in the plant for benefit, and unfavourable, which produces pathological state.

2, Plants, what plants grow by its side or on it and for benefit and economical purposes, and pathological.

3, Animals, what animals become of use and what parasites, insects, destroy it, or live on it, and what races or classes of hominidæ culture it produced by hybridisation and by what primitive and present manner.

7, Artiosphere. By what inventions, implements, machines, hothouses and ferneries, etc.

4, Stars.
3, Sun.
1, Planet.
1, Large planet.
6, The Earth.
6, Biosphere.

ANIMALS.

3, Animals. Kingdom.

1, Protozoa. Sub-kingdom.

2, Cœlenterata.

3, Annuloida.

4, Annulosa.

5, Mollusca.

6, Vertebrata.

1, Pisces.

2, Amphibia.

3, Reptilia.

4, Aves.

5, Mammalia.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals, Kingdom.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.
..... Male or female sex.

ANIMALS.

Anatomy.

Structure.

Morphology.

Forms—General appearance, head, ears, nose, eyes, shoulders, chest, back, forelegs, hindlegs, feet, tail, coat.

Size.

Weight.

Colour.

Anatomy.

Histology,

or in form of tissues—
Hypoblast, inner layer of cells.
Mesoblast, the middle layer of cells.
Epiblast, the outer layer of cells.
Changes by different environment.
Tabulate what parts, etc., differ from the previous species, and thus show how it differentiates from the previous species,
From Protozoa to Vertebrata,
upto hominidæ, and for hominidæ how races differ and thus anthropometric observations of the individual of a race for his biography to be had.

Colour pictures of all species, showing how each differs from the previous.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals, Kingdom
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.
..... Male or female.

ANIMALS.

Physiology—digestion, æration, circulation, multiplication, mental.

Functions. Physiology includes pathology which is physiology of diseases.

1, Digestion, under this from protozoa to all higher vertebrata upto hominidæ to state all functions of absorbtion to higher digestion, of all order and if necessary of species, and to collect the duplicates separately to have natural history of digestion separately and so of all other functions.

2, Æration.

3, Circulation.

4, Multiplication.

5, Mental. It is the animal and not the brain that feels and acts, it is the animal as a whole and not one part that feels and acts. Cerebral physiology and psychology are the sciences for study of mental phenomena as parts of general physiology.

1, Feelings.
2, Emotions.
3, Sentiments.
4, Perceptions.
5, Ideas.
6, Actions.

1, Varieties of actions.

2, Kinds of actions.

3, Particular actions.

4, Special actions.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals. Kingdom.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.
..... Male or female.
Functions.
3, Mental.

ANIMALS.

Feelings, Emotions, Sentiments.

1, Feelings.

1, Feeling from destruction—cut, temperature, indigestion, effort. "Pains positive arise from too great expenditure."

2, Feeling of fatigue.
3, Feeling of hunger.
4, Feeling of thirst.
} "Pains negative from insufficient accumulation," conducing to decay.

5, Feeling of ease. "Pleasures negative from diminution of expenditure."

6, Feeling desire for movements—
1, Indefinite in lowest protozoa, and new-born babe of other animals.
2, Of absorbtion or struggle for life.
3, Of running, play in higher animals.
} "Pleasure positive result from increase of excitation," coming from growth and conducing to growth and multiplication.

7, Feeling sexual. Carnal love.

2, Emotions. "Feeling perceptual and ideal."

1, Fear of 1 self, 2 food, 3 love, 4 children, 5 property, 6 honour.
2, Anxiety is anticipated fear.
3, Grief.
4, Regret.
5, Despondency.
6, Doubt.
7, Disgust.
8, Hate.
9, Contempt.
10, Disliking.
11, Anger.
12, Revenge.
13, Jealous.
All these from discord producing enmity. Anti-social.

14, Affection.
15, Love or Liking.
16, Hope.
17, Belief.
18, Satisfaction is pleasure in presence.
19, Confidence. Anticipates the presence.
20, Joy.
21, Astonishment.
22, Delight.
23, Elation.
24, Pride. Pleasurable feeling of superiority over others.
All these from harmony. Amity-social.

3, Sentiments.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
..... Sub-kingdom.
..... . Class.
..... Order.
.... Sub-order.
..... Genus.
..... Species.
..... Male or female.
Functions.
5, Mental.

ANIMALS.

Perceptions. Ideas.

Facts of cerebral physiology or psychology of animals of all species will thus be had, showing how in different animals perceptions and ideas form and differentiate and in what manner.

4, Perceptions.

1, By senses—

1, Touch.
2, Taste.
3, Smell.
4, Hearing.
5, Sight.

2, Of—

1, Position.
2, Magnitude.
3, Direction.
4, Distance.

3, Of—

1, Of solids.
2, Of liquids.
3, Of "intuition of things.

5, Ideas.

1, Concrete.
2, Abstract.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, The Biosphere.
2, Animals.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.
..... Male or female.
Functions.
5, Mentals.

ANIMALS.

Varieties of actions.
Kinds of actions.

6, Actions.

1, Varieties of actions.

1, Absorbing upto eating. Protozoa simply absorb and other animals eat, and hominidæ dine to eat. See p. 59, Dining.

2, Sexes, manner of cohibition.

3, Trunk moving.

1, Creeping, on land.

2, Swimming, in water.

4, Limbs moving.

1, Legs.

1, Walking.

2, Running.

1, Trotting.

2, Cantering.

3, Galloping.

3, Jumping.

2, Hands movement.

5, Flying.

2, Kinds of actions.

1, Random movements. As Protozoa act, and other new-born animals.

2, Sensory motor. By some form of sensation, loud sound causes one to turn or take fright.

3, Selective by pleasure or pain.

4, Impulsive, by sense formed. Instinctive.

5, Ideo-motor. By ideas.

6, Imitative.

7, Voluntary.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.
..... Male or Female.
Functions.
5, Mental.
6, Actions.

Animals.

Particular actions and Special actions.

3, Particular actions.

1, Fighting.

1, For food.

2, „ Carnal love.

3, „ Offspring.

4, „ Places.

5, „ Habitations and other things.

6, „ Vengeance, material prejudicial = moral.

2, Communicating. There should be some manner of communicative movements, otherwise for millions of years so many species of animals would not have fought, helped and survived.

1, Signs.

2, By voice producing.

3, Domestic. Strong mate monopolizes the most attractive in its group, therefore a form of domesticity exists. There is parental regulating control. There is milking the infant. Therefore domestic actions exist in animals other than hominidæ also.

4, Mimicry.

5, Toileting exist among other animals than hominidæ. See *Scientific American* Supplement, "How Animals make their Toilet." August 25th, 1906, p. 25625.

4, Special actions.

Producing. Birds make nests, ants build mounds, beavers produce dams, spiders make webs, and hominidæ (animal man) make so many things, and so many special actions—political, ecclesiastical, professional, industrial, see from p. 65.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals, Kingdom.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.
..... Male or Female.

ANIMALS.

Environment.

Environment.
Astronomical.
Lat., long., time.
Sun, lunar, etc., influences.

3, Lithosphere. Pictures.
Geological strata, soil.
Altitude.
Names of the places on which the animal is found.

4, Hydrosphere. } About water, air, weather, climate, of where
5, Atmosphere. } animal lives.

6, Biosphere—

1, Bacteria—what bacteria are of use and what injure it (pathology). In particular actions these are considered.

2, Plants—on what plants it lives, and grows by the side, and injures it.

3, Animals—what animals help, and what are not beneficial and kills it, what races, classes used and use it as domestic animal or for eating, milking, for skin, wool, hunting. By hominidæ for riding, circus, carriage.

Artiosphere—what and how artificial things they used and use, nests, mounds, dams, habitations, other articles, stable, cages, harness. Instruments to catch, whips to train.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, Earth.
6, Biosphere.
3, Animals.
6, Vertebrata. Sub-kingdom.
5, Mammalia. Class.
16, Primates. Order.
2, Anthropoidea. Sub-order.
5, Hominidæ. Family. Genus.

Ages.

Animal Man.

Ages.

See the *Scientific American* Supplement, January 26, 1901, "Archæology in the Past Century" by Prof. W. M. Flinders Petrie, D. C. L., for the first six periods.

1, Eolithic: Rudest massive flints from deposits 600 feet up.

2, Achuleen: Paleolithic massive flints from gravels 200 feet up and less.

3, Manstrien Paleolithic. Cave dwellers: Flints, like the preceding and flakes.

4, Solutrien Paleolithic. Cave dwellers: Flints well worked and finely shaped.

5, Magdalevin Paleolithic. Cave dwellers: Abundant bone workings and drawings.

6, Neolithic. Polished flint workings pastoral and agricultural man. 10,000 years old.

7, Copper. 6,000 B. C. Egyptian.

8, Bronze. 3,000 or 2,000 B. C. Babylon. Assyria.

9, Iron.

4, Star.
3, Sun.
1, Planet.
1, Large Planet.
6, Earth.
6, Biosphere.
8, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
6, Hominidæ. Family. Genus.
..... Age.

Animal Man.

Races.

I have numbered all these races to explain this project, but it is left to students of the subject to improve upon them. For all these races, see "*Man Past and Present*," by A. H. Keane.

1, Homo Æthiopicus Races.
- 1, Sudanese.
- 2, Bantus.
- 3, Negritoes.
- 4, Bushmen.
- 5, Hottentots.
- 6, The Oceanic Negroes.

Ethnographical departments in India and in United States of America, should come to an arrangement to record all races according to their nature-history.

2, Homo Mongolicus.
- 1, The Southern Mongols
  - 1, Bodpa.
  - 2, Burmese.
  - 3, Tai-Shan.
  - 4, Giao-Shi.
  - 5, Chinese.
- 2, The Oceanic Mongols
- 3, Northern Mongols
  - 1, Mongol proper.
  - 2, Tungus.
  - 3, Korean. Japanese and Liukiu.
  - 4, Türki.
  - 5, Finno-ugrian.
  - 6, East Siberian.

3, Homo Americanus.
- 1, The American Aborigines.
  - 1, North American
  - 2, Central American.
  - 3, South American.

4, Homo Caucasicus
- 1, Homo Mediterranensis.
- 2, Homo Alpinus.
- 3, Homo Europæus.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, Earth.
6, Biosphere.
3, Animals.
2, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
8, Hominidæ. Family. Genus.
..... Age. Races.

1, Homo Æthiopicus, Races most of Africa and Australasia.

1, Sudanese.

West Sudanese.

1, Wolof.
2, Mandingan.
3, Felup.
4, Timni.
5, Kru.
6, Sierra Leonese.
7, Liberian.
8, Tshi.
9, Ewe, and
10, Yoruba.
11, Ibo.
12, Efik.
13, Borgu.
14, Mossi.

Central Sudanese.

15, Sonrhay.
16, Hausa.
17, Mosgu.
18, Kanembu.
19, Kanuri.
20, Baghirmi.
21, Yedina.

East Sudanese.

22, Maba.
23, Fur.
24, Nuba.
25, Shilluk.
26, Dinka.
27, Bari.
28, Abaka.
29, Bongo.
30, Janghey.
31, Mangbattu.
32, Zandeh.
33, Momfu.
34, Basé.
35, Barea.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidei.
8, Hominidæ. Family. Genus.
..... Age.

Races.

1, Homo Æthiopicus, Races most of Africa and Australasia.

2, Bantus.
1, Bonjo.
2, Baya.
3, Waganda.
4, Wanyoro.
5, Wapokomo.
6, Wagiryama.
7, Waswahili.
8, Zolu-Xosa.
9, Mashona.
10, Bechuana.
11, Ova-Herero.
12, Eshi-Kango.
13, Bashilange.
14, Balolo.
15, Manyuema.
16, Bakalai.
17, Fan.
18, Upongwe.
19, Dwala.
20, Batanga.

3, Negritoes.
1, Akka.
2, Wochua.
3, Dume. (?)
4, Wandorobbo. (?)
5, Doko. (?)
6, Obongo.
7, Batwa.

4, Bushmen.
1, Family groups.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, Earth.
6, Biosphere.
8, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ. Family. Genus.
..... Age.

RACES.

1, Homo Æthiopicus. Races.

5, Hottentots.

1, Wasandowi.
2, Namaqua.
3, Griqua.
4, Gonagua.
5, Koragua.
6, Hill Damaras.

6, The Oceanic Negroes.

1, Papuasian.

1, Western Papuasian (true Papuous) : nearly all the New Guinea natives.

1, Aru and other insular groups thence westwards to Flares ;
2, Torres Straits and Louisiade Islands.

2, Eastern Papuasians : nearly all the natives of Malanesi.

1, From Bismark Archipelago.
2, New Caledonia.
3, Figi.

2, Australians : hundreds of tribal groups, without any characters sufficiently marked to constitute distinct ethnical divisions anywhere.

3, Negritoes :—

1, Andamanese Islanders.
2, Semanges.
Sakais and other scattered groups in the Malay Peninsula.
3, Aetas, surviving in most of the Philippine Islands.

4, Stars.
2, Sun.
1, Planet.
1, Large Planet.
6, Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ. Family. Genus.
..... Age.

RACES.

2, Homo Mongolicus, Races.
1, The Southern Mongols

1, Bodpa.
1, Tibetan.
2, Tangut.
3, Horsok.
4, Si-fan.
5, Balti.
6, Ladakhi.
7, Gurkha.
8, Bhotiya.
9, Miri.
10, Mishmi.
11, Abor.

2, Burmese.
1, Naga.
2, Kuki-lushai.
3, Chin.
4, Kakhyen.
5, Manipuri.
6, Karen.
7, Talaing.
8, Arakanese.
9, Burmese proper.

3, Tai-Shan.
1, Ahom.
2, Khamti.
3, Ngiou.
4, Lao.
5, Siamese.

4, Giao-Shi.
1, Annamese.
2, Cochin-Chinese.

5, Chinese.
1, Chinese proper.
2, Hakka.
3, Hok-lo.
4, Pun-ti.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
6, Primates.
2, Anthropoidea.
5, Hominidæ. Family. Genus.
..... Age.

RACES.

2, Homo Mongolicus, Races.
2, The Oceanic Mongols.

Malayans (Proto-Mallays):

1, Lampongs.
2, Rejangs.
3, Battas.
4, Achinese.
5, And Palembangs in Sumatra.
6, Sundanese.
7, Javanese proper.
8, Madurese in Java.
9, Dyaks in Borneo.
10, Balinese.
11, Sassaks (Lambok).
12, Bugis and.
13, Mangkassaras in Celebes.
14, Tagalas.
15, Bisayans.
16, Bicols.
17, Ilocavos, Ilocanos.
18, Pangasinanes in Philippines.
19, Aborigines of Formosa.
20, Nicobar Islanders.
21, Hovas.
22, Betsimisarakas.

Malays Proper (Historical Malays).

23, Sakalavas in Madagascar.
24, Menangkabau (Sumatra).
25, Malay Peninsula.
26, Pinang.
27, Singapore.
28, Lingga.
29, Bangka.
30, Borneo Coastlands.
31, Tidor.
32, Ternate.
33, Amboina.
34, Parts of the Sulla Archipelago.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
9, Hominidæ. Family. Genus.
..... Age.

Races.

2, Homo Mongolicus, Races.
3, The Northern Mongols.
1, Mongol proper.
1, Sharra (Eastern).
2, Kalmak (Western).
3, Buryat (Siberian) Mongol.
2, Tungus.
1, Tungus proper.
2, Manchu.
3, Gold.
4, Oroch.
5, Lamut.
3, Korean Japanese and Liu-kiu.
4, Turki.
1, Yakut.
2, Kirghiz.
3, Uzbeg.
4, Taranchi.
5, Karakalpak.
6, Nogai.
7, Turkoman.
8, Anatolian.
9, Osmanli.
5, Finno-Ugrian.
1, Baltic Finn.
2, Lapp.
3, Samoyad.
4, Cheremiss.
5, Votyak.
6, Vogul.
7, Ostyak.
8, Bulgar.
9, Magyar.
6, East Siberian.
1, Yakaghir, Tukaghir.
2, Chukchi.
3, Koryak.
4, Kamachadale.
5, Gilyak.

4, Stars.
2, Sun.
1, Planet.
1, Large Planet
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
6, Hominidæ. Family. Genus.
..... Age.

Races.

3, Homo Americanus, Races.

1, The American Aborigines.

1, Northern American.

1, Eskimauan (Innuit, Aleut, Kuralit).
2, Athapascan (Kuchin, Chippewyan, Apache, Navajo).
3, Kolushan.
4, Algonquian (Delaware, Abenaki, Chippeway, Shawnee, Arapaho).
5, Sacsac Fox, Blackfoot.
6, Iroquôian (Huron, Mohawk, Tuscarora, Seneca, Cayuga, Onondaga).
7, Siouan (Dakota, Omaha, Crow, Iowa, Osage, Assiniboin).
8, Shoshone (Comanche, Ute).
9, Salishan.
10, Sahaptian.
11, Caddoan.
12, Muskhogean, (Creek, Choctaw, Chicasa, Seminole).
13, Pueblo, Zuni, Tegua, Jemez, Moqui.

2, Central American.

1, Opatan.
2, Nathuatlan (Aztec Pipil).
3, Huaztecan (Maya, Quiché, Pocoman).
4, Miztecan.
5, Zapotecan.
6, Charotegan.
7, Otomitlan.
8, Talamancan.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ. Family. Genus.
..... Age.

RACES.

3, Homo Americanus, Races.
1, American Aborigines.

3, South American.

1, Muyscan (Chibcha).
2, Guechuan (uitu, Chincha, Inca, Aymara).
3, Yuncan (Chimu).
4, Antisan.
5, Jivaran.
6, Zaparan.
7, Betoyan.
8, Warrauan.
9, Panoan.
10, Ticunan.
11, Lecan.
12, Barrean.
13, Tacanan.
14, Chiquitan.
15, Mojan.
16, Arawakan.
17, (Atorai, Maypure, Wapiana, Vaura, Mahinacua) Layana.
18, Cariban (Bakairi, Nahuqua, Paomella, Galibi, Calina, Arecuna, Macusi, Ackawoi).
19, Guaranian (Tembo, Tupi, Omagua, Mundrucu).
20, Gesan (Botocudo, Camacan).
21, Charruan.
22, Mataguayan.
23, Lulean.
24, Toban.
25, Mocabian.
26, Araucan.
27, Puelchean (Pompas).
28, Tehuelchean.
29, Fuegian.
30, (Yahgan, Alacaluf).

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ. Family. Genus.
..... Age.

RACES.

4, Homo Caucasicus, Races.

1, Homo Mediterranensis.
1, Most Iberians.
2, Corsicans.
3, Sards.
4, Sicilian.
5, Italians.
6, Greeks.
7, Berbers and other Hamites.
8, Arabs and other Semites.
9, Some Hindus.
10, Dravidas.
11, Todas.
12, Ainus.

2, Homo Alpinus.
1, Most French and Welsh.
2, South Germans.
3, Swiss and Tyrolese.
4, Russians.
5, Poles.
6, Chekhs.
7, Yugo-Slavs.
8, Some Albanians and Rumanians.
9, Armenians.
10, Many Kurds.
11. Tajiks (East Persian).
12, Galchas.
13, Indonesians.

3, Homo Europaeus.
1, Scandinavians.
2, North Germans.
3, Dutch.
4, Flemings.
5, Most English.
1, Anglo-American.
2, Anglo-Australasians.
3, Anglo-Indian. Eurasians.
4, Anglo-African.
6, Scotch.
7, Irish.
8, Dutch of South Africa.
9, Thrako-Hellenes.
10, Some Kurds.
11, Most West Persians.
1, Parsis of China in 8th century.
2, Parsis of India.
12, Afghans.
13, Dards and Siah-post Kafirs.
14, Many Hindus.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals. Kingdom.
6, Vertebrata. Sub-Kingdom.
5, Mammalia. Class.
16, Primates. Order.
2, Anthropoidea. Sub-Order.
5, Hominidæ. Family. Genus.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.

1, Tribe.

Phratry is a division of a tribe or not is to be decided.

2, Clan.

3, Village Community.

4, Families.

5, Single Family.

Male.

Female.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
6, Hominidæ.
..... Age.
..... Race.
..... Division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single Family.
..... Male or Female.

ANIMAL MAN.

Anatomy.

Structure.

Morphology.

Forms.

Size.

Weight.

Colour.

Colour pictures of the male and female of the races showing how each race differs from the previous one, and so on of classes—king, aristocrats, statesmen, priests, professionals, industrials.

Anatomy includes histology.

Or in forms of tissues—

Hypoblast, inner layer of cells.

Mesoblast, the middle layer of cells.

Epiblast, the outer layer of cells.

Record what parts differ from the previous one and of previous age, race, and show how they differentiate from the previous one if required, and thus Anthropometric observations of an individual, the individual of a race for his biography, and thus from protozoa to vertebrata, up to hominidæ of highest degree Nature-History Research-Record of structure can be had in describing defining manner.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
3, Hominidæ.
..... Age.
..... Race.
..... Division of a Race.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single Family.
..... Male or Female.

Animal Man.

Physiology—digestion, æration, circulation, multiplication, mental.

Pages 29 to 31 are repeated on p. 48 (this page) to p. 51, so as to refer conveniently for animal man, called hominidæ.

Functions. Physiology includes pathology, that is physiology of diseases.

1, Digestion.

2, Aeration.

3, Circulation.

4, Multiplication.

5, Mental.

"It is the man and not the brain that thinks it is the organism as a whole and not one organ that feels and acts." G. H. Lewes.

1, Feelings.

2, Emotions.

3, Sentiments.

4, Perceptions.

5, Ideas.

6, Actions.

1, Varieties of actions.

2, Kinds of actions.

3, Particular actions.

4, Special actions, differentiating into division of labour. Classes of men.

1, Political. Military, Civil. *See* from p. 65.

2, Ecclesiastical. *See* p. 69.

3, Professional. *See* pp. 70—71.

4, Industrial. *See* pp. 72—73.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
8, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single Family.
..... Male or Female.
Functions.

ANIMAL MAN.

Feelings.

See *Outline of Psychology* by Prof. J. Sully, p. 479, and *The Functions of the Brain*, by Dr. Ferrier, M.D., LL.D., F.R.S.

5, Mental.

1, Feelings from destruction.
- 1, Cut.
- 2, Temperature.
- 3, Indigestion.
- 4, Effort.

"Pains positive arise from too great expenditure."

2, Feeling of fatigue.
3, Feeling of hunger.
4, Feeling of thirst.

"Pains negative from insufficient accumulation" conducing to decay.

5, Feeling of ease.
- 1, Health from illness.
- 2, By Message.
- 3, Caresses of the hand.
- 4, By yielding cushion.

"Pleasures negative from diminution of expenditure."

6, Feeling desire for movements.
- 1, Indefinite in Newborn.
- 2, For struggle in grown up.
- 3, For running, for play.

"Pleasures positive result from increase of excitation," coming from growth and conducing to growth and multiplication.

7, Feeling sexual. Carnal love.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
6, Hominidæ.
..... Age.
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..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.

Animal Man.

Emotions. Sentiments.

2, Emotions = "Feelings perceptual and ideal."

1, Fear of 1 self, 2 food, 3 love, 4 children, 5 property, 6 honour.
2, Anxiety is anticipated, fear.
3, Grief.
4, Regret.
5, Despondency.
6, Doubt.
7, Disgust.
8, Hate.
9, Contempt.
10, Dislike.
11, Anger.
12, Revenge.
13, Jealous.

All these from discord producing enmity and anti-social emotions.

14, Affection.
15, Love or Liking.

All these from harmony. Amity-social.

16, Hope.
17, Belief.
18, Satisfaction is pleasure in presence.
19, Confidence.

Anticipates the presence.

20, Joy.
21, Astonishment.
22, Delight.
23, Elation.
24, Pride.

Pleasurable feelings of superiority over others.

3, Sentiments.

1, Aesthetics. Beauty. Admiration is sentiment higher than love.
2, Moral. Duty. Ethical.
3, Intellectual. Truth, knowledge, logical.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
6, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
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..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mentals.

Animal Man.

Perceptions. Ideas.

4, Perceptions. See *Outline of Psychology*, by Prof. J. Sully, and *The Functions of the Brain*, by D. Ferrier, M.D., LL.D., F.R.S.

1, By Senses.

1, Touch.

2, Taste.

3, Smell.

4, Hearing.

2, Of

1, Position.

2, Magnitude.

3, Direction.

4, Distance.

3, Of

1, Solids.

2, Liquids.

3, "Intuition of things."

5, Ideas.

1, Concrete.

2, Abstract. Mathematical in individual biography like Newton's, and so of logic of logicians.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
8, Animals.
6, Vertebrata.
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16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
5, Ideas.

Animal Man.

Religions.

"The doctrine that propitiation of the ruling man, becoming after his death propitiation of his double expected presently to return, gave origin to ideas and observances which became eventually those we class as religious." Spencer's great discovery which all anthropologists now recognise to be true. See Spencer's *Principles of Sociology*, Vol. I, for genesis of ideas arranged on this page, so as to understand why in a single number come sometimes so many ideas.

When separating each set of ideas from all races, natural-history of each set, such as ideas about soul life, and so of all others will be separated from the nature-history project.

1, Inanimate.
2, Animate.

3, Sleep, dreams; Ideas about.

4, Swoon, apoplexy, catalepsy, ecstasy, other forms of insensibility.

5, About death, resurrection.

6, Souls, ghosts, spirits, demons, etc. Some collect not simply ghost stories, but believe them as facts. Therefore in those cases those stories can be collected in the respective orders of ideas.

7, Another life.
8, Another world.

9, Supernatural agents; Ideas about.

10, Ideas about supernatural agents as causing epilepsy and convulsive fits, delirium and insanity, disease, and death.

11, Inspiration, divination, exorcism and sorcery.

12, Ancestors, ghosts (worship is in actions not here.)

13, Ideas about idols („ „ „ „ „)

14, Ideas about fetich, and ideas about

15, Animal ghost.

16, Plant ghost.

17, Nature as soul or spirits.

18, Ideas of deities, angels.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2. Anthropoidea.
5, Hominidæ.
..... Age.
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..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.

ANIMAL MAN.

Literature, History, Morals, Law, Philosophy, Science, Manufacture, Agriculture, Commerce, Banking, that is, knowledge in these subjects.

5, Ideas.—(Continued).

19, Folklore.

20, Myths, nature myths.

21, Traditions or oral legends, down by memory for ages, before writing comes.

22, Epical ideas and epic poems.

23, Ideas, political. All these special ideas (knowledge) are to be thought on or collected with their special classes of special actions.

24, Ecclesiastical.

25, Professional—historical, legal, theological, metaphysical, philosophical, ethical, grammatical, logical. And so also scientific ideas are to be considered when studying lives of scientific men, and to record their ideas, that is discoveries, inventions and duplicates of those records to be made and collected separately for each science, so that natural history of each science will be had from Nature-History Research-Record. Similarly, psychologists to have natural history of psychology, &c.

26, Producers,' of producing.

27, Rearers', of agriculture.

28, Distributors', about distributing, commercial.

29, Exchanging, about banking.

30, Ideas about regulating operatives come into political, but here they come into mill agents and their organizations, like millowners' associations, chambers of commerce, &c. See p. 72 for "Operative-Regulating Actions."

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
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6, Biosphere.
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16, Primates.
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..... Age.
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..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.

Animal Man.

Varieties of actions and Kinds of actions.

In different races of mankind all these actions are to be found and even these are performed occasionally by the same animal man.

6, Actions.

1, Varieties of actions.

1, Absorbing upto eating from protozoa to hominidæ.

2, Sexes, manner of cohibition, movements of or execution of carnal love.

3, Trunk moving.

1, Creeping on land. Man creeps sometimes.

2, Swimming in water.

4, Limbs moving.

1, Legs.

1, Walking.

2, Running.

3, Jumping.

2, Hands moving.

Hominidæ do not fly, though move in air in baloons and flying machines, but the legs and hands are moving, therefore balooning is not flying.

2, Kinds of actions. See. Ladd's *Primer of Psychology*, "Kinds of Movements," p. 197.

1, Random movements, as new born infants make.

2, Sensory-motor, by some form of sensations. Loud sound. Excitement.

3, Selective by pleasure or pain.

4, Impulsive. Formed by sense. Instinctive.

5, Ideo-motor movements.

6, Imitative movements.

7, Voluntary movements. Degree of Intelligence is displayed by degree of voluntary movements.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
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5, Mammalia.
16, Primates.
2, Anthropidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
6, Actions.

Animal Man.

Particular actions.

Speech, Language. Domestic.

Manners. Etiquette. Fashion. Customs. Habits. } All these actions come under "Particular actions" mentioned from No. 1. to 34, they are, therefore, not mentioned among them, see from this page to p. 64.

3, Particular actions.

1, Fighting.

1, For food.

2, „ carnal love.

3, „ offspring.

4, „ places.

5, „ habitations and other things.

6, „ vengeance material.

prejudicial = moral, vanity.

2, Communicating.

1, By signs. Some signs. Writing.
Lip movements, etc., by deaf persons.

2, By voice — speech, language. Vocal music.

3, Domestic or actions relating to relatives—exogamy, endogamy, polyandry, polygamy, monogamy, morganatic marriage, chastity, and paternal, maternal, filial, and ceremonial pertaining to these. See "Domestic relations" and "Ceremonial Institutions," by Herbert Spencer.

4, Mimicry.

5, Trophy-taking. See this work page 80, and "Ceremonial Institutions," by Herbert Spencer.

4, Stars.
3, Sun.
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1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
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5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
6, Actions.

Animal Man.

Particular actions.

Clothing, etc., and Respecting.

3, Particular actions.

6, Clothing.

1, Mimicry-clothing. I discovered that covering ourselves originated from mimicry. First Eolithic hominidæ appropriated some leaves and fruits in order to imitate them to deceive birds, etc. See pages 80, 95—96.

2, Trophy-clothing. Spencer proves clothing comes from trophy-taking. Thus come horns, skins, etc., as clothing. See "Ceremonial Institutions."

7, Mutilating. See "Ceremonial Institutions."

8, Toileting.

9, Respecting. See "Ceremonial Institutions" for all these respecting actions.

1, Throwing on back on the ground.

2, Prostrating and putting superior's foot on neck.

3, Prostrate and with their faces touching the ground.

4, Repeating thrice.

5, "Body is on the knees with the head on the ground; and to rise it is needful to draw up the knees before raising the head and getting on the feet."

6, "Bending down their heads, and knocking them at his feet to the very ground."

7, Worshipper before his deity thus came from the above.

8, Upon their bellies, or standing "on all fours."

9, Kneeling descent on both knees.

10, Kneeling on one knee.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
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..... Age.
..... Race.
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..... Sub-division.
..... Main-section.
.. .. Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
6, Actions.
3, Particular actions.

ANIMAL MAN.

Particular actions.

Respecting.

9, Respecting.—(Continued from page 56.)

11, Courtesy, that is bending the knee only. Courtesy, abridged act of kneeling.

12, Profound bow, that is, body bent downward.

13, "A nod is a short bow." "A bow is a short salaam."

14, Body bent downwards and joining the hands and bound.

15, Joined only to show they are bound.

16, Joining the hands and making upwards and bring near the head, old salaam.

17, Joining of palms.

18, Joining the hands and putting between other hands.

19, Salaam. Bringing or raising one hand to the head.

20,

21, Embracing.

22, Surrendering weapons.

23, Surrendering dress, making themselves naked.

1, Removing garments as in dance, keeping chest open, removing of hat for respect.

2, Removing lower dress, as shoes in darbars, temples, baring the feet.

24, Smelling to show affection and respect.

25, Liking to show affection and respect.

26, Tasting to show affection and respect.

27, Kissing cheeks, hands, garments, and ground.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
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3, Animals.
6, Vertebrata.
5, Mammalia.
16. Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
6, Actions.

Animal Man.

Particular actions.

Respecting, presenting, visiting, distinguishing by titles, distinguishing by class.

3, Particular actions.

9, Respecting.—(Continued from page 57.)

28, Shaking of hands comes from kissing of hands.

29, Adhering dirt, putting dust or ashes on body.

30, "Hands bound and a rope round the neck." A sign of humility.

31, Weeping. Weeping as respect and affection.

32, Clapping of the hands (not joining of palms) and clapping on thigh, and clapping on breast as among Hindoos.

33, Shouts.

34, Absorbing each other's blood.

35, Exchanging names.

36, Offering one from among them to kill and eat.

37, Addressing, as all address in talk and writing, but addressing to heads become special actions.

10, Presenting. To present to the conqueror. Present to relatives, friends.

11, Visiting. To call to give presents to a chief, then to show subjection, thus come periodical calls called levees, and calls to military, civil superiors and others, and lastly cards for calls.

12, Distinguishing by titles.

13, Class distinguishing.

1, Places—1, above; 2, below; 1, front; 2, rear.

2, Dresses.

3, Addresses.

4, Names.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
8, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
8, Mentals.
6, Actions.

3, Particular actions.

ANIMAL MAN.

Particular actions.

Dining, etc., etc.

14, Dining. Sacrifices had to be made to propitiate ancestors' ghosts and other ghosts and deities and thus dining together, religious dinners, picnics near shrines, State dinners, banquets, evening parties and other parties, and dining at restaurants followed. Includes drinking.

15, Bathing. From a religious custom bathing became habit, and we now take ablutions for health and hygienic purposes.

16, Reading. General reading, newspapers, journals, novels, literature, etc. Not business or professional.

17, Singing and music playing as all do. Professional is in special actions. *See* page 70.

18, Dancing. As all do, and not professional. For professional, *see* page 70.

19, Gambling. Gambling had religious origin.

20, Theatre-going. Theatre-going had religious origin, now it is an amusement.

21, Conversation. Not professional and business, as they come in special actions.

22, Friends-making.

23, Letter-writing. Not business.

24, Society-going.

25, Shopping. As gentlemen and ladies do. Marketing is in special actions, *see* page 73.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
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3, Biosphere.
8, Animals.
3, Vertebrata.
5, Mammalia.
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..... Race.
..... Main-division.
..... Sub-division.
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..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
6, Actions.
3, Particular actions.

Particular Actions.

Priestly actions are diffused in undeveloped societies, and these six actions, mentioned on this page from number 26, are performed by other persons, also such as fasting, worship, etc. Therefore, they are mentioned here as particular actions of all persons. For special actions of priests, *see* p. 69, Ecclesiastical.

26, Sacrificing. For this and following five items up to 31, see *Principles of Sociology*, Vol. 1.

27, Fasting.

28, Propitiating.

29, Praising.

30, Prayer.

31, Worship.

1, Ancestor worship.
2, Idol „
3, Animal „
4, Plant „
5, Rivers „
6, Ocean „
7, Mountain worship.
8, Fire „
9, Deities or gods of anthropomorphic attributes.
10. God and unknown cause worship.

32, Charity giving. Propitiating the dead with offerings, and what remains is taken by priests and then by the poor. Thus charity evolves.

33, Pilgrimage. From the respect for going to shrines comes pilgrimage. From that comes trading and travelling for discoveries. *See* special actions, pp. 71, 73.

4, Stars.
3, Sun.
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6, Biosphere.
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2, Anthropoidea.
5, Hominidæ.
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..... Sub-division.
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..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
4, Actions.
3, Particular actions.

PARTICULAR ACTIONS.

Plays and Games.

It is for students of natural history, of plays and games to research their genesis minutely and to see how they differentiated. In nature-history, therefore, facts under particular actions—Playing for each race and sub-sections should be collected.

34, Playing.

1, Children playing.

1, Fighting games.

2, Hunting.

3, Boating.

4, Homely games—dressing dolls, preparing food, wedding, wife catching.

5, Courting games. See *The Study of Man* by A. C. Haddon, for these games arranged in this page.

6, Funeral games.

7, Singing games.

2, Lots or dice playing.

3, Boards and draught boards and men.

4, Card games. Have also sacred and divinatory origin.

5, Kite flying.

6, Whipping tops.

7, Bull-roarer.

8, Tug-of-war.

9, Gladiators and animals. The practice of human sacrifice by flaying "prisoners of war or slaves or criminals condemned to death" was in order to please the spirits of animals. If they were spared, they were praised and rewarded.

10, Martial games.

4, Stars.
3, Sun.
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1, Large Planet.
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5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
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..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or female.
Functions.
5, Mental.
6, Actions.
3, Particular actions.

PARTICULAR ACTIONS.

Ball games.

34, Playing.—(Continued.)

11, Ball games. They are not stated here in order of genesis.

1, Tossing and catching. See *Anthropology* by E. B. Tylor, from p. 307, for all these games in this page.

2, Two sides parties, and goal, hurling.

3, Ball from horse back, with a long stick, mallet, or racket.

Sport of chaugân.

4, Polo.

5, Racket.

6, Pall mall in middle ages.

7, Croquet.

8, Badmington.

9, Tennis.

10, Hockey.

11, Golf.

12, Rounders.

13, Cricket.

14, Billiards.

15, Ping-Pong.

4, Stars.
8, Sun.
1, Planet.
1, Large Planet.
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..... Sub-section.
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..... Male or female.
Functions.
5, Mental.
6, Actions.

PARTICULAR ACTIONS.

Play. Sports.

3, Particular actions.

34, Playing.—(Continued.)

12, Running as race. Not for chase.

13, Swimming. Not as primitive man did for business but for play and pleasure.

14, Gymnastics.

15, Athletics,—boxing, wrestling, machine gymnastics.

16, Horse-racing.

17, Horse-riding.

18, Skating.

First it was for fighting, hunting or travel. Here it is for play, recreation, and exercise.

19, Skipping.

20, Boating. Sailing as play, not for business (here).

21, Rowing. As play, not for business (here).

22, Walking. For pleasure or play and exercise. Formerly it was for purpose of doing work only.

23, Driving. For pleasure. First it was chariot driving for military purposes and car to convey idols and for other religious purposes. Then comes coachman. But here referred to for amusement only.

PARTICULAR ACTIONS.

Manners and Fashion come under Particular actions, *see* from pages 55 to 63.

"The sole forms of courtesy known were the signs of submission to the strong man; as the sole law was his will, and the sole religion the awe of his supposed supernaturalness." . . . "We may see that all rules of conduct whatever spring from his will. Alike legislator and judge, all quarrels among his subjects are decided by him; and his words become the Law. Awe of him is the incipient Religion; and his maxims furnish its first precepts. Submission is made to him in the forms he prescribes; and these give birth to Manners. From the first, time develops political allegiance and the administration of justice; from the second, the worship of a being whose personality becomes ever more vague, and the inculcation of precepts ever more abstract; from the third, forms of honour and the rules of etiquette."

"Law and Religion control behaviour in its essentials: Manners control it in its details."

"And when we consider what these restraints are—when we analyze the words, and phrases, and salutes employed, we see that in origin as in effect the system is a setting up of temporary governments between all men who come in contact, for the purpose of better managing the intercourse between them."

"As contrasted with manners, which dictate our minor acts in relation to other persons, Fashion dictates our minor acts in relation to ourselves. While the one prescribes that part of our department which directly affects our neighbours; the other prescribes that part of our department which is primarily personal, and in which our neighbours are concerned only as spectators. Thus distinguished as they are, however, the two have a common source. For while, as we have shown, Manners originate by imitation of the behaviour pursued towards the great; Fashion originates by imitation of the behaviour of the great. While the one has its derivation in the titles, phrases, and salutes used to those in power; the other is derived from the habits and appearances exhibited by those in power."

Fashion.

1, By subordination to the superior. "Reverential imitation."

2, By imitation to the superior. "Competitive imitation, characterizing a state of comparative independence."

See Spencer's Essays, Vol. I, "Manners and Fashion," and "Fashion" in "Ceremonial Institutions."

4, Stars.
3 Sun.
1, Planet.
1, Large Planet.
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6, Vertebrata.
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5, Hominidæ.
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..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
5, Mental.
6, Actions.

SPECIAL ACTIONS.

Political.

Military.

4, Special actions.
1, Political actions.
1, Military. *See* "Military Systems" in *Political Institutions*, by Herbert Spencer.
1, Soldiers.
1, Males are all fighters—hunters or soldiers. While women work at home and conquered persons work as slaves, conquerors' special actions are formed as soldiers.
2, Slaves fight by the side of the conquerors, and then they are liberated.
3, Freemen and land-owners as soldiers.
4, Traders and property-owners as soldiers.
5, Soldiers provided by property-owners. Non-fulfilment of military obligation was loss of land or heavy fine, which became common, and then levying of dues, and next of taxes, and thus.
6, Soldiers provided by State.
7, "Unlikenesses of arms consequent on unlikenesses of rank, initiate these military divisions which tend to traverse the divisions arising from tribal organization."
8, To record facts according to military actions found in different peoples in themselves.
1, Infantry.
2, Cavalry.
3, Artillery.
2, Officers.
2, Civil. 1, General—1, Executive, 2, Consultative, 3, Representative.
2, Local. *See* following page 66.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
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3, Animals.
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16, Primates.
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..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
5, Mental.
6, Actions.
1, Special actions.
1, Political actions.

SPECIAL ACTIONS.

Political.

Civil.

"Everywhere the horde, when its members co-operate for defence or offence, begins to differentiate into a predominant man, a superior few, and an *inferior* many with that massing of groups which war effects, there grows out of these, head chief, and at higher stages of integration, kings, nobles and people."

2, Civil. See "Political Institutions" by Herbert Spencer for items in this page.

1, General.

1, Executive.

1, Single Political heads.

1, Predominant person.

1, Aged hunter's.

2, Distinguished warrior's.

3, Cunning medicine man's.

2, Chief's.

3, King's actions. Aristocratic actions include courtly manners also.

Courtiers'.

4, Emperor's.

5, King-Emperors'.

2, Compound political heads'. Oligarchy's. Group of leading men.

3, President's.

2, Consultatives' actions.

3, Representatives' actions.

2, Local. "Out of family-government and clan governments—evolves such governments as those of the tything, the gild and the Municipality."

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Function.
5, Mental.
6, Actions.

4, Special actions.

SPECIAL ACTIONS.

1, Political actions.

Political.

2, Civil.—(Continued.)

Civil.

1, General.

1, Executive.

1, Single political head's to compound upto President. *See* preceding page 66.

3, Kings.

1, Courtiers' actions. This includes Lord Chamberlain's office issuing invitations, which has a political significance.

2, Secretaries'

3, Ministers'

4, Departmental heads'

1, Foreign.

2, Financial, etc., etc.

5, Administrative officers'

1, Secretaries'

2, Councillors'

3, Commissioners'

4, Collectors'

5, Judges'

6, Magistrates'

7, Constables'

8, Policemen's

9, Other minor government officials'

6, Agents. *See* next page 68.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
10, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
5, Mental.
6, Actions.

SPECIAL ACTIONS.

Political.

Civil.

Political Agents.

4, Special actions.
1, Political actions.
2, Civil.—(Continued.)
1, General.
1, Executive.
1, Single political head's, *see* preceding pages.
3, King.
6, Agents.

1, To foreign countries.

1, Temporary.

1, Plenipotentiary's.

2, Permanent.

1, Ambassador's, consul's.

2, To conquered countries.

1, Governor's.

2, Viceroy's.

1, Departmental heads'.

2, Administrative officers'.

3, And Viceroy's Agents'.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
... . Main-division.
..... Sub-division.
... . Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Function.
5, Mental.
6, Actions.

SPECIAL ACTIONS.

Ecclesiastical.

Sacrificing, fasting, propitiating, praising, prayer, worship are performed by priests as their special actions. Lay people perform them also. See particular actions, page 60.

4, Special actions.
2, Ecclesiastical. See "Ecclesiastical Institutions" by Herbert Spencer for the items in this page.

1, One member of the family performs priestly actions.

2, Eldest male descendant's as quasi priest action.

3, Head of the most powerful family performs ceremonies.

4, Chief's and king's priestly actions are ceremonies.

5, Chief deputes one as priest.

6, From the ancestor worshipping members of conqueror's family priestly caste came.

7, "From wherever, with the worship of an apotheosized founder of the tribe, there co-exist in the component families of the tribe, worshippers of their respective ancestors, there is an undeveloped polytheism and an incipient priesthood appropriate to it."

8, Priest's military actions.

9, Priest's civil actions.

4, Stars.
3, Sun.
1, Planet.
7, Large Planet.
6, The Earth.
6, Biosphere.
3, Animal.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
8, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
5, Mental.
6, Actions.

SPECIAL ACTIONS.

Professional.

4, Special actions.

3, Professional. All these come from priestly actions. See "Professional Institutions" by Herbert Spencer for all these items.

1, Physicians'.

2, Surgeons'.

3, Dancing. Hymns chanting, dancing near idols, these are all special actions. For others, as generally dance, *see* page 59.

4, Musicians'.

5, Beggars' begging. Beggars are orators also.

6, Orators'. Oratory originated from begging.

7, Poets'.

8, Actors'.

9, Dramatists'; Minstrels', Buffoons', Jugglers'.

10, Biographers'.

11, Historians'.

12, Literary actions. Men of letters.

1, Essayists'. Humorous.

2, Essayists'. Critical.

3, Novelists'. Novel writing.

13, Scientists'.

14, Philosophers'.

15, Inventors'. Inventing not to be considered into producing.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
5, Mental.
6, Actions.
4, Special actions.

Special Actions.

Professional.—(Continued.)

3, Professional. All these come from priestly actions. For genesis, see "Professional Institutions" by Herbert Spencer.

16, Judge's judgments.

17, Lawyer's pleading.

18, Teaching.

19, Painting.

20, Architecting.

21, Engineering.

22, Sculpturing.

23, Acrobating. Circus performers'.

24, Athletes'.

25, Cooking. Comes from priest.

26, Clerks' writing. Not as all write, but of special clerical writing.

27, Barbers'.

28, Reforming. Reformers'.

29, Coachman or driving. Priests were first drivers of chariots for gods. Now driving is done by coachman.

30, Travelling. From visiting shrines pilgrimage came, then fairs near shrines for trade, and therefrom for different lands for discoveries, travelling comes.

4 Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animal.
6, Vertebrata.
5, Mammalia.
1st, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
5, Mental.
6, Actions

Special Actions.

Industrial actions.

Producers, Agriculturists, Merchants, Bankers.

By making duplicates of Nature-History Research-Records of all these actions and then separately collecting them, natural history of producing or manufacturing of all things, and agriculture, commerce, banking, will be had.

4, Special actions.
4, Industrial actions.

1, Producing actions. All manners of producing or manufacturing.

Processes.

By making duplicates of all these producing actions and what they produced or manufactured and then separately collecting them, natural history of artificial things will be had. *See* p. 75.

2, Rearing.
1, Plants rearing. Agriculture.
1, Spreading grains, fruits, over burial places to propitiate the dead. Grant Allen thus proves the origin of agriculture.
2, Animal rearing.
3, Distributing. See following page 73.
4, Exchanging.
1, Presenting. See "Ceremonial Institutions" and "Industrial Institutions" and this book page 58, N. 10.
2, Bartering. From presenting bartering comes.
3, Banking.
5, Operative-regulating actions.
1, Paternal regulating actions.
2, Patriarchal actions.
3, Communial actions.
4, Gild regulating actions.
5, Regulating actions of the staffs of manufacturing establishment.
6, Regulating actions of organisations like millowners' associations and of Chambers of Commerce.

For ideas, *see* page 53, N. 30.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.
Functions.
6, Mental.
6, Actions.

SPECIAL ACTIONS.

Industrial actions.

Merchants.

4, Special actions.
4, Industrial actions.

3, Distributing. See "Industrial Institutions" by Herbert Spencer for the following items in this page.

1, Producer-rearer as distributor.

1, Distributors of articles.

1, Stationary, not locomotive.

2, Nomadic, locomotive.

2, Distributors of skill.

1, Stationary, not locomotive.

2, Nomadic, locomotive.

2, Secondary distributors.

1, Stationary, not locomotive.

1, Run short of their production and get from others.

2, Shops. Selling from shop. See "Industrial Institutions."

2, Itinerant dealers.

1, Chapman', hawkers', pedlers', packmen'.

2, Wholesale traders'.

3, Travelling merchants', from whom come travellers, and merchants come from pilgrims.

4, Merchants'.

5, Commission agents'.

6, Caravans', merchants'.

3, Carriers'. Cart, railway, ship, messengers', postmen', telegraph, telephone.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
..... Age.
..... Race.
..... Main-division.
..... Sub-division.
..... Main-section.
..... Sub-section.
..... Single family.
..... Male or Female.

ANIMAL MAN.

Environment.

Environment.

Astronomical.

Lat. Long. Time.

Sun, lunar, etc., influences.

3, Lithosphere.

Geological strata, soil.

Altitude.

Names of the places on which hominidæ is found, and emigrated or immigrated. Changes and travels to different places.

4, Hydrosphere. } About weather, climate where the hominidæ lived
5, Atmosphere. } and live.

6, Biosphere.

1, Bacteria—what are of use and what injure and produce diseases.

2, Plants—on what plants he lives and what grows on the soil where he lives.

3, Animals—what animals he eats and kills for different purposes, and what are injurious to him and what are domestic animals and what for play. What races of hominidæ they came across and relatives and friends, etc.

7, Artiosphere. What and how artificial things they used and use, that is the house to live, clothing to wear—all these to be considered into particular actions. How they made and make to be considered into Producers. For artificial things see following pages 75-86.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

Artificial things.

If the scheme of Nature-History Research-Record has failed, still these suggestions will be of use for the study of artificial objects.

All artificial things are also entirely natural things. From nature-history point of view, they come after 6, Biosphere. Therefore I suggest as 7, Artiosphere.

How and what artificial things they produced are to be considered and recorded into Producing actions as stated, see page 72.

Make duplicates of Nature-History Research-Record of these Producing actions, that is processes and artificial things they produced and then separately collect them for separate things under the separate headings, habitations, implements, coverings, etc., in order of nature-history so that, nature-history of 7, Artiosphere can be had.

In the following pages I give the nature-history order of all artificial things, which ought to be improved upon by students, to serve as a guide.

4, Stars.
1, Sun.
2, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

Artificial things.

Habitations. Land works, fortifications, ways, docks, etc.

1, Habitations. Habitations came before implements, therefore first.

1, Holes, burrows produced to lie in without implements by insects and other animals, who came before hominidæ. Hominidæ also make holes in sands and caves in rocks.

2, Moulds, Mounds produced by insects. Insects came before hominidæ. Ants make mounds six feet high.

3, Nests, produced by birds, and tree platforms by apes, before implements were produced by hominidæ.

4, Cottages, huts. Screens made by setting up rows of leaves leaning against a pole forming cottages and huts, thereafter plastered by mud. Thus other forms evolved.

5, Cluster of huts. To defend against animals and enemies, habitations are arranged round a small area so as to open their doors upon the inner space.

6, Palace. Hut most decorated and fortified is that of the Chief, is called palace and has rooms for audience from which halls for court ceremonies came.

7, Government public buildings. King's departmental works caused to have different rooms for different works and thus public buildings for Government offices came to be.

2, Land works.

1, Fortifications. Habitations are made to defend against enemies and therefore the Chief's palace is most fortified and from which fortifications came to be.

2, Ways. Ways are first made for military purposes.

1, Roads.

Bridges. Bridges are parts of roads.

2, Rail roads.

Rail road bridges.

3, Tram roads.

4, Canals. Canal of Athos was built to convey army of a Persian Emperor.

5, Rivers as ways and

6, Seas as ways.

Piers.

Docks.

3, Race course.

4, Play grounds—Tennis, croquets, etc.

4, Stars.
5, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

Artificial things.

3, Structure over corpses and to lay corpses, and monuments, temples, cathedrals. Special students have to arrange these in order of genesis.

1, Tumuli. "The tope is the lineal descendant of the tumulus."
2, Cairns.
3, Galgals.
4, Mounds.
5, Burrows.
6, Cromlechs.
1, Temples of idols.
2, Fire temples.
3, Temples of deities.
4, Cathedrals.
1, Monasteries, etc.
5, Mosques.
6, Bramasamaj.
7, Dolmes.
8, Quoits.
9, Cistvæns.
10, Talayats.
11, Nuroghi.
12, Kurgans.
13, Sessi.
14, Stazzone.
15, Menhirs.
1, Columns of Trajan, Nelson, etc.
16, Alignment, which are lines of menhirs.
17, Avenues.
18, Cycloliths.
19, Stone circles.
20, Stonetare.
21, Round towers.
22, Trilithans.
23, Sarsens.
24, Stonehenge.
25, Towers of Silence of the Parsis to lay corpses.
1, Open.
2, Covered with metal wires but open to Sun's rays and air.
1, Sagadi. Fire is kept burning, therefore a room is built near the Tower of Silence to keep the fire in.
26, Crematorium.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

ARTIFICIAL THINGS.

Accessory Buildings.

4, Accessory buildings.

1, Monasteries. From cromlechs came temples, cathedrals, then monasteries, etc., see page 77.

2, Restaurants. Spirit drinking and religious dinner places first near temples, then separated as restaurants.

3, Clubs.

4, Gymnasiums.

5, Gymkhanas.

6, Gambling houses. For religious purposes first in temples and monasteries, then separated.

7, Inns. Pilgrims used to shelter in and near temples and in houses of priests. Thereafter separated as inns for travellers. Travellers came from pilgrims, see page 71.

8, Hotels. From inns in course of time hotels evolved.

9, Fair structures. Near temples religious fairs were held and from which fair shops came.

10, Shops. Now, in other streets and not near temples and churches, shops separately exist.

11, Merchants' offices.

12, Other office buildings.

13, Bank buildings.

14, Exhibitions. From religious fairs to village fairs and then exhibitions came, and from exhibition buildings Crystal palace came to be. And so other places of amusement.

15, Baths. Pools, rivers, tanks near temples for religious purposes as bathing places, then for hygienic purpose and for exercise and play.

16, Hospital. Temples were hospitals also for the treatment of diseases in Egypt, 6000 years ago. In Europe hospices for pilgrims and travellers.

17, Dispensaries.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

ARTIFICIAL THINGS.

Accessory Buildings.

4, Accessory buildings. (Continued.)

18, Orphanages.

19, Foundling hospitals.

20, Theatres. For religious performances then came for drama, amusement and instruction.

21, Libraries. First in temples, churches, then other varieties came to be.

22, Schools.
23, Colleges.
24, University buildings.
} From giving religious instruction present schools, colleges, universities evolved.

25, Societies' buildings. For instance Royal Society, etc.

26, Laboratories. Priests practised alchemy, etc., from which came chemistry, and thus laboratories came to be.

27, Technical institutes.

28, Observatories. Priests were astrologers and astronomers and used to predict weather, from which meteorology came and observatories founded.

29, Museums. For relics then for curiosities, etc., and now for knowledge.

30, Art galleries. First, priests were painters' sculptures for religious subjects, then came other art galleries.

31, Botanical gardens, and buildings pertaining to them, ferneries, hot-house, etc.

32, Zoological gardens. Cages for animals.

33, Printing houses. First for religious prints, then for other information, and now for various purposes.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
5, The Earth.
7, Artiosphere.

ARTIFICIAL THINGS.

5, Floats. Logs, and logs together, boats, ships, steamships, etc.

6, Implements. "Stick was the parent of a group of implements."

1, Weapons include guns, turret ships, Torpedo boats. Spider's web is a trap, therefore weapon.

2, Tools of industry. Eolithic to present age.

3, Machines. Vehicles come into machines.

7, Coverings of animals, carcases and corpses.

1, Covering-mimicry. I believe it originated from mimicry, see pages 56, 95-96.

1, Of saliva in some insects.

2, Leaves, barks and fruit shells used in mimicry in Eolithic hominidæ, see pages 56, 95-96.

3, Leaves are made into aprons, or skirts. See *Anthropology* by E. B. Tylor.

4, Prepared leaves, barks, fruit shells, fruits.

5, Plaiting and matting. Basket making evolved from this.

6, Fibres, strings, twist strings, threads—cotton, wool, silk.

7, Woven, weaving.

8, Sewn.

2, Covering-trophy-taking. See "Ceremonial Institutions" by Herbert Spencer. § 408.

1, Parts of the victim vanquished.

2, Parts of the slain hominidæ.

3, Badge, costumes, dresses.

4, Heraldic badges. Coats-of-arms.

5, Ornaments come from trophy-taking and from magic. See § 413. "Ceremonial Institutions" and *Nature* of Oct. 29, 1903, Anthropology at the British Association.

6, Weapons.

1, Swords, as princes and officers carry with them as marks of honor.

2, Spear. See § 409 "Ceremonial Institutions."

3, Sceptre.

3, Coverings from personal mutilations.

1, Personal skin, mutilations—scars, lacerations, "tattoo

2, Personal skin colouring. by incising the skin."

4, Hair decorations, and colouring. Toilet-comb, brush.

5, Nail growing.

6, Grinding of teeth to points.

7, Compressing of heads.

8, Compressing of feet as in China.

4, Stars.
3, Sun.
1. Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

Artificial Things.

8, Æsthetic products.

9, Stools, Articles to rest.

1, Stools.

2, Stands.

3, Chairs.

10, Articles to hold.

1, Boxes.
2, Baskets.
3, Pots of earth.
4, Crockery.
5, Vessels of metal.

} Plating and matting; from this basket-making came, then covering baskets with clay to hold liquid, and then the removal of basket resulted in pots of earthenware and porcelain.

11, Fire. First for religious purpose to produce heat and fire. Here comes fire-making and fire-making appliances. First by rubbing pieces of wood by friction.

12, Light. Here come all sorts of lamps, chandeliers, candles upto electric lamps, etc. Crackers, fire works.

1, For the dead and ceremonial purposes, for idols, deities.

2, Annual festival like Dewali among Hindoos. Crackers, fire works.

3, On Coronation and other ceremonies.

4, Other religious occasions.

5, In palaces, houses of rich and poor.

13, Food.

1, Cut. Hominidæ eat fruits after cutting, moulding and dressing them, therefore they become artificial.

2, Cooked food.

14, Medicines. First certain drugs to drive out evil spirits, and thus knowledge of beneficial drugs to be used for certain diseases came to be.

15, Intoxicating drinks. Alcoholic and other intoxicating drinks also have divinatory origin.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

ARTIFICIAL THINGS.

Writing materials. Toys.

Objects of play.

16, Stationery.

1, Pictures on bones, stones, wood, bark, papyrus, skin, clay, leaves.

2, Picture writing, records of hunting, war.

3, Sound pictures. Sound writing, that is pictures stand for the sound, not modern phonograph. *See* for it on this page.

4, Hieroglyphic or "Sacred-sculpture"—"pictures, used as they were for the solemn records of Church and State." Hieratic, a few quick strokes.

5, Cuneiform writing records.

6, Alphabetic writing, on tablet of soft metal, wooden leaves coated with wax, parchment or papyrus roll, thick clay-tablets in Babylonia and Assyria.
Tabloids of bamboo bark, etc., and various papers, now.

7, Quipus. "It consists of a cord with knots tied in it for the purpose of recalling or suggesting something to the mind."

8, Rosary. Beads.

9, Printing.

10, Typewriter machines.

11, Phonograph: Sound or voice printing.

12, Cards tabulated. Card system writing.

13, Cards perforated like that used in ariston musical instruments.

14, Stationery-accessories. I enumerate the following which are to be stated in order of genesis as guide:—Writing tables, trays, valets, despatch boxes, cases, date racks, letter case binders, ruler, water well, rubber erasers, elastic bands, pins glue, gum bottle, table diary, calendar, desk pad, presses, pen rest, sealing wax, albums, revolving stands, reading stands, reference stands, pens, pencils, powders, fluids—inks, etc., stamp dampers. Envelope fastening press, etc., etc.

17, Toys.

18, Objects of play. Cards, dice, boards, balls, bats, nets, etc.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.

Artificial Things.

Instructive. Educational.

Currency and Judicial articles.

19, Educational. I enumerate the following which are to be stated in order of genesis correctly:—

1, Globes. Models of the Earth.

2, Orreries.

3, Models of Kindergarten.

4, Models.

5, Telescopes.

6, Microscopes.

7, Spectroscopes.

8, Cameras, photographic.

9, Stereoscopes.

10, Diaromas.

11, Magic lanterns and slides.

12, Electric machines, and other electric apparatuses for educational purposes.

20, Currency and Judicial articles to be arranged correctly:

1, Very much used articles generally.

2, Various articles used as coins.

3, Coins. Metal.

4, Paper currency.

5, Receipts.

6, Certificates.

7, Wills.

8, Cheques.

9, Stamps.

10, Tickets.

11, Letters of credit.

12, Bills of exchange.

13, Price lists.

14, Catalogues.

15, Account books.

16, Reports.

17, Balance sheets.

18, Judicial documents.

19, Briefs.

20, Judges' documents.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.
..... Kingdom.
..... Sub-Kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.

Structure.

Forms.

Size.

Length.

Breadth.

Depth.

Weight.

Colours.

State how a thing differs from the previous one.

ARTIFICIAL THINGS.

Structure.

Make duplicates of Research-Records of producing actions and products—artificial things—they produced of all races, and separate them according to different kingdoms and sub-kingdoms of artificial things as stated from page 76—83. You will thus get Nature-History Research-Record of Artiosphere and natural history of artificial things with their structure and processes how made.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.
..... Kingdom.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.

Functions.

ARTIFICIAL THINGS.

Functions.

Make duplicates from certain Nature-History Research-Records of particular and special actions, as to where and how things used are stated, and so the functions of artificial things will be collected.

Functions, that is, how used and by whom used.

For instance how clothing is worn or used.

Painting of body for what purposes—religious, protection, decoration.

Painting how enjoyed, that is its purpose here as function.

As used by a person and for such a purpose and thus how other new inventions or new generations of artificial things or multiplication or heredity results. It goes on changing into structure, according to the use by different classes of hominidæ, that is, different environment.

For instance habitations used by all, and thus from a hut to the palace used by a king, and thus public buildings evolved and so all other buildings.

4, Stars.
3, Sun.
2, Planet.
1, Large Planet.
6, The Earth.
7, Artiosphere.
..... Kingdom.
..... Sub-kingdom.
..... Class.
..... Order.
..... Sub-order.
..... Genus.
..... Species.

Artificial Things.

Environment of artificial things.

Make duplicates from Research-Records of producing actions and products, and of their environment so as to have Research-Record of environment of artificial things.

Environment.

Astronomical.

Lat. Long.

Time.

Sun, lunar, etc., influences.

3, Lithosphere.

Geological strata, soil.

Altitude.

Names of the places on which things are found, that is, made and distributed.

4, Hydrosphere. } About water, air, weather, climate, of where
5, Atmosphere. } the things exist.

6, Biosphere.

1, Bacteria—What are of use and what of injury.

2, Plants—On what plants artificial things depend, and what grows on the soil where they exist.

3, Animals—Which animals including hominidæ improve, produce for different purposes, and how used and which are injurious.

7, Artiosphere. Which inventions help or replace.

See from page 75 for artificial things.

Descriptive Defining Nature-History Research-Record Illustrated.

SPECIMENS.

(The specimen pages are, literally speaking, merely guides to specimens in order to render the subjects easier of treatement by students.)

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
8, Animals. Kingdom.
1, Protozoa. Sub-kingdom.

SPECIMEN.

Animal.

1, Gregarinidæ. Class.
1, Monocystidea. Order.
..... Male or Female.

Structure. Here give colour pictures of Monocystidea order.

Forms.
Size.
Weight.
Colour.
Histology.
State what parts, etc.
differ from the previous
species or order, and thus show
how the animal differentiates from
the previous species.
(Go on doing so for all the animals
up to Vertebrata and up to hominidæ, for instance
Englishman.)

Functions.

1, Digestion. How absorbs.
2, Æration.
3, Circulation.
4, Multiplication.
5, Mental.
1, Feelings.
2, Emotions. Have none.
3, Sentiments. Have none.
4, Perceptions.
5, Ideas. Have none.
6, Actions.
1, Varieties of actions.
2, Kinds of actions.

Here give colour pictures of all these events to explain functions, or give them by the side of the pictures above referred to.

Environment.
See page 34 and state
any event necessary.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animal.
6, Vertebrata.
5, Mammalia.
5, Cetacea.

SPECIMEN.

A specimen about a fossil.

Ichyosaurus[1].

A dragon of the Prime[1].

Structure.

20 feet in length, the head 2 feet across and 3 feet 10 inches long[1].

The paddles are unusually distinct, the front pair 2 feet 6 inches, the hind pair 1 foot 8 inches in length[1]. The tail is abruptly curved, and some of the lumbar vertebræ are slightly displaced. The pelvic ring is missing; removed, perhaps, before the nature of the find was guessed, and still to be recovered[1].

Colour illustrations of the fossil to be given here.

Functions.

State what you have guessed.

SPECIMEN.

How to state the authority.

(1) *See Nature* of September 1, 1898, "A Dragon of the Prime." In the report of the Rugby School Natural History Society for 1899, an excellent plate of the skeleton will be found, *see* "Notes" in *Nature* of April 5, 1900.

(Name of the person who writes the above.)

4, Stars.
2, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animal.
6, Vertebrata.
6, Mammalia.
5, Cetacea.

SPECIMEN.

Icthyosaurus[1].
A Dragon of the Prime[1].
Environment.
3, Lithosphere.
The Saurian.
Lower middle lias.
Fossils, 45 feet
below the surface[1].
Europe, England,
The little Warwick-
shire village of
Stockton[1].
4, Biosphere.
3, Animals.
7, Artiosphere.
What other fossils,
Implements,
etc., found.

Colour illustrations of the place where the fossil is found are to be given here.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
8, Hominidæ.

SPECIMEN.

About Eolithic hominidæ.

1, Eolithic. Age. See page 35, Ages.
..... Races not found.
..... Single family. See page 46.
..... Male or female. See page 46.
Structure. See page 47.
Describe here form, etc., of the find and state how it differs from others and thus show the genesis.
(Thus go on doing for all the peoples of the world up to now.)
Function. See from page 48.
Note what you guess.

Colour picture of a fossil find of Eolithic hominidæ to be given here.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
6, Mammalia.
16, Primates.
2, Anthropoidea.
3, Hominidæ.

SPECIMEN.

About Eolithic hominidæ.

1, Eolithic, Age.
..... Races not found.
..... Single family. See page 46.
..... Male or female.
Function. See page 55. If research-record of other functions are to be had refer from page 48 to 73.
5, Mental.
6, Actions.
3, Particular actions.
3, Domestic relationship[1].

Here give colour pictures, which you may have guessed of the male with several wives and children, exhibiting domestic life of Eolithic hominidæ.

SPECIMEN.

How to state the authority.

(1). "The semi-brutal stage, before language was evolved, living as Darwin thought, not in hordes, but in small unsocial groups, each composed of one adult male with several wives and children. The sons of such a family would be expelled as soon as they reached maturity, owing to the fierce sexual jealousy of the father. This picture is based on what we know, little enough, of man-like apes, such as the gorilla; rightly or wrongly, evidence from cattle and other herding animals is also employed. Such, at least, according to the author, is the genesis of exogamy." See in *Nature* July 14, 1904, p. 244, article on "Totemism and Exogamy", in which *Primal Law* by J. J. Atkinson and *Social Origins* by Andrew Lang, M.A., LL.D., are reviewed by Ernest Crowley. N. J. R.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.

SPECIMEN.

About Eolithic hominidæ.

1, Eolithic. Age.
..... Race.
..... Single family.
..... Male and female.

Functions.

5, Mental.
6, Actions.
3, Particular actions.
4, Mimicry[1]. See p. 56. Appropriates some leaves, fruits, or shells of fruits, so that birds, etc., may be deceived.

Here give colour picture of Hominidæ of Eolithic age, trying to imitate by coverings of leaves, fruits, shells of fruits, to deceive birds, etc.

SPECIMEN.

How to state the authority.

(1) On Saturday, the 11th May 1901, I thought that hominidæ of Eolithic age may be practising some mimicing actions, so that he may have appropriated some leaves, fruits to imitate to deceive birds, etc., and therefore mimicry may have been the cause of wearing leaves, fruits, or shells of fruits in hominidæ of Eolithic age.

Herbert Spencer traces the origin of clothing from trophy-taking. I think origin of clothing first came from mimicry and in some races from trophy-taking.

"One of the rudest tribes of the Indian hills, Juangs, adhered to their bunches of leaves in the belief that change was wrong." See "Political Institutions," § 467, which is in my favour. See the Journal of the Anthropological Society of Bombay, Vol. VII, No. 6, pages 411-412.

N. J. READYMONEY.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.

SPECIMEN.

About Eolithic hominidæ.

1, Eolithic.

..... Age.

..... Race.

.... Single family.

..... Male or female.

Functions.

5, Mental.

6, Actions.

4, Special actions. The colour pictures guessed to be given here.

4, Industrial actions.

1, Producing. See pages 72, 75, 84, 85.

How he might have
worked to make
rudest massive
flints,
caves, or huts,
to be noted here, and the
authority on the
reverse side of this.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
1, Eolithic.
..... Age.
..... Race.
..... Single family.
..... Male or female.

SPECIMEN.

About Eolithic hominidæ.

Environment. See page 74. Here enumerate, if necessary, events stated on page 73.

Give colour pictures of the place where Eolithic hominidæ is found.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
9, Iron age.
4, Homo Caucasicus. Race.
3, Homo Europæus. Main-division.
5, English. Sub-division.
Main-section.
Sub-section.
Single family.
Male.

SPECIMEN.

H. M. King-Emperor Edward VII.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ. Family.
9, Iron. Age.
4, Homo Caucasicus. Race. See page 41
3, Homo Europæus. Main-division.
5, English. Sub-division.
Main-section.
Sub-section.
Single family.
Male.

SPECIMEN.

H. M. King-Emperor Edward VII.

Structure. See page 47.

Give colour pictures of His Royal Highness.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
7, Vertebrata.
5, Mammalia.
16, Primates.
2, Anthropoidea.
5, Hominidæ.
9, Iron..... Age.
4, Homo Caucasicus. Race.
3, Homo Europæus. Main-division.
8, English. Sub-division.
Main-section.
Sub-section.
Single family.
Male.

Functions. See from page 65.

SPECIMEN.

H. M. King-Emperor Edward VII.

From 23rd January 1901, Political actions of our King-Emperor begin, when the ceremonial courtier Lord Halibury's special actions of administering the oath and assuming the power of King-Emperor come. From that time military, priestly and civil Special actions of the King-Emperor have devolved upon him, that is, all his special actions with his own and Foreign ministers, Emperors, and subjects, meeting with Emperors, and saving Empire and enlarging or bringing prosperity to his subjects. Thus a nature historian, without falling into the errors by religious or socialistic political bias or ignorance, will record events why it was natural that all those events should have taken place to bring into existence such a Monarch and the Empire.

In the same manner the nature-historian will do for other subjects and for generals, statesmen, priests professionals and industrial persons.

4, Stars.
3, Sun.
1, Planet.
1, Large Planet.
6, The Earth.
6, Biosphere.
3, Animals.
6, Vertebrata.
5, Mammalia.
16. Primates.
2, Anthropoidea.
5, Hominidæ.
9, Iron. Age.
4. Homo Caucasicus. Race.
3, Homo Europæus. Main-division.
4, English. Sub-division.
Main-section.
Sub-section.
Single family.
Male.

SPECIMEN.

H. M. King-Emperor Edward VII.

Environment. See page 74.

SPECIMEN.

Artificial things.

Unless producing actions are collected in natural history order rom Nature-History Research-Record, no specimen for Artiosphere an be had. See pages 72, 75, 84, 85, 86.

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